

# Glands of Skin

	<b>SEBACEOUS (OIL) GLANDS</b>	<b>ECCRINE SWEAT GLANDS</b> (eccrine = secreting outwardly)	<b>APOCRINE SWEAT GLANDS</b> (apo- = separated from)	<b>CERUMINOUS (wax) GLANDS</b>
<b>Distribution</b>	Largely in lips, glans penis, labia minora, and tarsal glands; Few in trunk, limbs; Absent in palms & soles	Throughout skin of most regions of body, especially skin of forehead, palms & soles	Skin of axillae, groin, areolae, bearded regions of face, clitoris, and labia minora	External auditory canal.
<b>Location of secretory portion</b>	Dermis.	Mostly in deep dermis	In deep dermis and upper subcutaneous layer	Subcutaneous layer
<b>Termination of excretory duct</b>	Mostly connected to hair follicle.	Surface of epidermis.	Hair follicles.	Surface of external auditory canal or into ducts of sebaceous glands
<b>Secretion</b>	Sebum (mixture of triglycerides, cholesterol, proteins, and inorganic salts).	Perspiration, (water, Na <sup>+</sup> , Cl <sup>-</sup> , urea, uric acid, NH <sub>3</sub> , amino acids, glucose, and lactic acid.	Perspiration, same components as eccrine sweat glands plus lipids and proteins	Cerumen, a waxy material.
<b>Functions</b>	Prevent hairs from drying, Prevent water loss from skin, Keep skin soft, inhibit growth of some bacteria.	Regulation of body temperature, waste removal, emotional sweating or a cold sweat	Stimulated during emotional stress and sexual excitement.	Inhibit entrance of foreign bodies/microbes and insects into external ear-waterproof canal
<b>Onset of</b>	Mostly activated during	Soon after birth.	Puberty.	Soon after birth

# Functions of the Skin

The major functions of skin are:

**1. Thermoregulation:** The skin contributes to thermoregulation in two ways: by liberating sweat at its surface and by adjusting the flow of blood in the dermis.

**2. Blood Reservoir:** The dermis houses an extensive network of blood vessels that carry 8–10% of the total blood flow in a resting adult, thus as a blood reservoir

**3. Protection:** Keratin protects underlying tissues from microbes, abrasion, heat, and chemicals, Lipids inhibit evaporation of water from skin surface, thus prevent dehydration; they also retard entry of water through skin surface during bath, swimming. The oily sebum prevent drying and contains *bactericidal* chemicals. The acidic pH of perspiration retards the growth of some microbes. The pigment melanin protect against UV light.

**4. Cutaneous Sensations:** including tactile sensations — touch, pressure, vibration, and tickling; as well as thermal sensations such as warmth and coolness. Other cutaneous sensation is pain, indicative of impending or actual tissue damage

**Excretion and Absorption:** Besides removing water and heat from the body, sweat also is the vehicle for excretion of small amounts of salts, CO<sub>2</sub>, NH<sub>3</sub> and urea.

Certain lipid-soluble materials, toxic materials can be absorbed through the skin.

**6. Synthesis of Vitamin D:** It requires activation of a precursor molecule in the skin by UV rays in sunlight. Enzymes in the liver and kidneys then produces calcitriol (active form of vitamin D).